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What are Search Committees Looking for?

[Workshop Authors: Seiichi Matsuda, Kathy Ensor, Joff Silberg, Jennifer West, and Ken Whitmire.](#)

Slide 1: Applying for a Position

- Cold applications
 - Usually need to have connections to the department
- Responding to an advertisement
 - Consider level and areas requested
- Solicited applications
 - Be sure to present at the most relevant conferences. Hopefully this visibility will lead to contacts with hiring departments.

Slide 2: The Application

- Cover letter
 - Summarize your qualifications and interests
- Curriculum Vitae
 - Academic credentials
 - Research Experience
 - Publications
 - Honors, awards, grants, etc.
 - Some variability in details and format between fields.
- Research interests statement
- Teaching interests statement
- References

- May include reprints/preprints
 - Get feedback on your application package from a mentor.

Slide 3: Research Statement

- Remember that the search committee members may be in areas peripheral to your research
- Describe two or three research proposals
 - Usually one that is related to your prior work that is clearly feasible
 - One or two projects that demonstrate your ability to think beyond your current work

Slide 4: What to include?

- Statement about the problem
 - Key unanswered questions in field
 - How will your work contribute?
- Description of research plans
 - Break into specific aims
 - Include figures
 - Be both creative and realistic

Slide 5: Teaching statement

- Describe your philosophy towards teaching and experiences that led to this
- Discuss courses within the core curriculum that you could teach
- Propose development of a new course

Slide 6: What to emphasize in your application?

- Find out about the department/school
 - Importance of teaching vs. research
 - Areas of interest/growth
- May want to customize your application materials for different positions
- Brag about your successes!

Slide 7: What makes an application stand out?

- Varies between departments/institutions
- Strong publication record
 - Most important factor!
- Exciting research plan
 - Creative and innovative while also feasible
- Great reference letters
 - Evidence of innovation, creativity, hard work, etc.
- Interesting and innovative teaching plans
 - Highlight your experiences and capabilities
- Other experiences
 - Experience writing a grant, etc.

Slide 8: Recommended Reading

- [Making the Right Moves: A Practical Guide to Scientific Management for Postdocs and New Faculty](#)
 - Howard Hughes Medical Institute

- [At the Helm: A Laboratory Navigator](#)
 - Kathy Barker, Cold Spring Harbor Press

How to Stand Out in a Campus Interview

[Workshop Authors: Rebecca Richards-Kortum and Sherry Woods.](#)

Slide 1: Assumptions

- “Interview” = entire campus visit
 - Formal presentations/seminars
 - One-on-one meetings
 - Informal gatherings and interactions
 - Sample schedule
- “Standing Out” = Positive and Negative
 - You want to be remembered...for the right reasons
 - You are always “on”...

Slide 2: Components of a Hiring Decision for a Research 1 Institution

- Step One: Getting an interview
 - Recommendations from dissertation advisor and others
 - Publication record: quantity and journal quality
 - Match between institutional needs and applicant’s research focus
 - The “Hot” factor of research area
 - Formal application materials:
 - CV
 - Statement of research interests
 - Statement of teaching interests
 - Start-up needs
- Step Two: Getting an offer
 - All of the previous (and more...)

- THE CAMPUS VISIT
- Who Decides if an Offer Is Made?
 - Varies from campus to campus
 - Full professors
 - All faculty
- The Dean has the "final" say

Slide 3: Today's Focus

- The formal presentation
 - Practice talks on Tuesday afternoon
- One-on-one meetings and interactions with:
 - Faculty
 - Administrators
 - Students
- Strategies for success and for avoiding common pitfalls
- Meeting and Greeting Activity
- General Hints for Success!

Slide 4: TOP RULES NUMBERS 1 AND 2: Continually ask yourself these two questions:

1. Who is my AUDIENCE?
2. What is the CONTEXT/SETTING?

Slide 5: BEFORE the Campus Visit...

- INVESTIGATE THE INSTITUTIONAL PRIORITIES, CULTURE AND NEEDS
- Find out what you are doing and who your audiences will be...AND PREPARE ACCORDINGLY!

- Don't be afraid to ask for 30 min of prep time before your seminar
- Ask for meetings that will help YOU determine if position is a good fit
 - Assistant professors in the department
 - Potential collaborators in other departments
 - Graduate students in your area
 - Female faculty from other departments
- Homework
 - Know who everyone on your schedule is and what their area is
 - Find out what research areas the department is emphasizing
 - Find out what courses the department needs you to teach
 - How to get this info?

Slide 6: Things to Ask Everyone on Your Schedule

- What are the P and T criteria?
- What is the teaching load?
- What are the strategic directions of the department?
- If you could change anything about the department, what would it be?

Slide 7: DURING the Campus Visit...Words of Advice

- Presenting oneself as confident and competent is a balancing act
- The difference between: "I don't know" and "I don't know..."
- "Knowing your stuff" is NOT the same as "Knowing how to talk about the stuff you know..."

Slide 8: Elevator Speech Activity

- You are visiting for a two-day faculty interview at your number one school. In the elevator on the way to a meeting, someone introduces you to Dr. Clark, the Associate Dean for Research. She is not in your area. After shaking hands, she asks, "So, what do you do?" Your assignment is to prepare a 1-minute elevator speech that:

- Describes your research interest in a compelling way to someone outside your area
 - Ideally, you want her to walk back to her office and call the chair of the search committee to say how impressed she is with you as a potential colleague.
- Round One
 - Take one minute to prepare
 - Find one other person (to practice with)
 - At signal, begin (and end...)
 - Start with the handshake...
 - Remember...it's not a very tall building...
- Round One - Review. As Associate Dean, give feedback:
 - Name 2 – 3 key things you heard
 - Could you explain to some else her area of research?
 - Rate confidence level
 - Rate enthusiasm level
 - Rate hand shake
 - The art of confident handshakes...
 - Rating scale
 1. Needs work
 2. Okay, could be better
 3. Great!
- Round Two
 - Jot down 2 – 3 key messages you want to communicate
 - Repeat process with a new person
 - Still not a very tall building...
- Round Two - Review. As Associate Dean, give feedback:

- Name 2 – 3 key things you heard
 - Could you explain to some else her area of research?
- Rate confidence level
- Rate enthusiasm level
- Rate hand shake
 - The art of confident handshakes...
- Rating scale
 1. Needs work
 2. Okay, could be better
 3. Great!

Slide 9: DURING the Campus Visit...More Words of Advice

- When gender matters and when it doesn't...
- What to wear and how to wear it!
- When to ask questions and what questions to ask...
- Giving a technical presentation vs. teaching a class

Slide 10: Anatomy of a Good Technical Presentation

- Introduction - 10 minutes
 - Get them excited
 - Why is your work important?
 - Background to understand it
- The MEAT – 25 minutes
 - What you did (OK to sacrifice detail for clarity, not too simplistic)
 - What it means
 - Summarize as you go

- Only the experts should follow the last 10 minutes of this part of the talk
- The Implications – 10 minutes
 - What does this mean for the future of your field?
 - What direction will you take the work?
 - Leave everyone with a feeling of excitement about the future

Slide 11: Important Details

- Clean slides, No typos, Large font
- Outline easy to follow – help people stay with your talk
- Rehearse for knowledgeable audience
- Not too long or too short
- Reference work of others in the field, especially if they will be in the audience
- Practice answering questions
- Don't get defensive
- Check out the room and projector ahead of time
- Have a backup of your presentation!!
- Begin by saying, “Good Morning! It’s such a pleasure to be here.”
- At the end, say, “Thank You, I’d be happy to take any questions.”

Slide 12: Questioning Activity

- Expect the Unexpected: “Hard” Questions
 1. I don't think you've accounted for the research of Barnes and Bailey. Aren't you familiar with their model? I think it invalidates your main hypothesis.
 2. Unpublished research in my lab shows exactly the opposite effect. You must not have done the proper controls.
 3. I believe a simple non linear equation explains all your data. Why have you wasted your time on such a complex model?
 4. (To the candidate) Well you didn't even account for phenomena x.
(Aside to the audience) How can all this research be valid if she

didn't account for x?

5. How does this differ from the basic model that we teach in sophomore transport?
6. It looks like you've done some interesting modeling. Is there an application of this work?
7. What a wonderful little application. Is there any theoretical support?
8. Those results are clearly unattainable. You must have falsified your data.
9. You've done some interesting work, but I don't see how it could be considered engineering. Why do you think you are qualified to teach engineering?
10. Your work appears to be a complete replication of Fujimoto's work. Just what is really new here?

- Good Responses to Hard Questions

- “That’s a really good question...thank you for asking it.”
- “You make a very good point...I have a couple responses...”
- “We’ve discussed this question a lot in our research group and here’s what I think...”

Slide 13: Final thoughts...Strategies for Avoiding Interviewing Pitfalls

- Being too collaborative
- Being too “easy” (“Rice is my first choice!”)
- Failing to ask questions about the work of your host
- Focusing too much on social aspects of department/city

Slide 14: Preparing Tuesday’s Talk (for the workshop)

- Who’s your audience?
- How long?
- What’s the setting? (AV needs?)
- What kind of feedback will be given

- What if you “bomb”?

How to Find the Right Institutional Fit

[Workshop Authors: Mike Orchard \(Rice-ELEC\), Tom Killian \(Rice-Physics\), Sallie Keller-McNulty \(Rice-Dean of Engineering\), Karen Hirschi \(Baylor\), and Farinaz Koushanfar \(Rice-ELEC\)](#)

Slide 1: Welcome and introduction (Tom Killian)

- Think hard about finding what is right for you.
 - What is important for you?
 - Most applicants – go into the process without spending enough time at this.
- Be proactive and find the information you need.
- Application and interview process can teach you much about your field and yourself.
- Be honest and up front about your goals and interests.

Slide 2: What are your options? (Sallie Keller-McNulty)

- Research institution vs teaching institution vs government lab – and overlap between them
- Post doc vs permanent position
- First job vs last job point of view

Slide 3: What should you consider when looking for the right institutional fit? (Mike Orchard)

- Think about what makes you productive...what do you need?
 - Collaborative, resources, facilities
 - Not the same for every person
- Quality of life
 - Cost of living, weather, other interests

- Expectations of you and institution
- Teaching load, junior leave
- During the interview process, the institution is trying to make its best impression...it won't get better than this.
- Support for new faculty
- Joint academic appointments
- Space available
- Senior colleagues
- Future directions of the department
- Quality of the graduate students
- Quality of the undergraduate students
- Support of senior administration

Slide 4: What resources do you have for learning about institutions and options? (Karen Hirschi)

- Advisor – you can make it easy for him or her by providing good information on what you are considering
- Networking
- Junior faculty
- Colleagues at other institutions

Slide 5: What will your strategy be? (Farinaz Koushanfar)

- Various stages – pre application, application, interview, after offer
- Be proactive, especially once you have an offer – it makes you look strong!
 - Ask to meet with women faculty separately
 - Ask to meet with students, human resources
 - Ask to sit in on a class or seminar – see what they show you.
- Make your application appropriate for the institution
- Networking, or at least making it look like you are in the network by making your application appropriate for the institution

- During the offer phase, envision and negotiate for what will make you succeed...think broadly
- Being engaged and asking hard detailed questions on every visit will let the committee know you are interested. This is a good thing.
- Identify who is on your committee and who is not – junior faculty can provide good information on the choices you are faced with.

How and When to Negotiate a Strong Startup Package

[Workshop Authors: Rebekah Drezek, Behnaam Aazhang, Barry Dunning, Jim Kinsey, Marcia O'Malley, and Michael Diehl](#)

Slide 1: Our Plan for This Session

- Components of a Start Up Package
- Faculty Member Perspective
- Chair/Dean Perspective
- Q and A - Our Primary Emphasis

Slide 2: Negotiating Your First Position

Slide 3: My Favorite General References

- The absolute best reference:
 - [HHMI Lab Management: Making the Right Moves](#)
- Other good ones:
 - [Tomorrow's Professor—Preparing for Careers in S/E](#)
 - [A PhD is Not Enough!](#)
 - [The Chicago Guide to Your Academic Career](#)
- And you have to read:
 - [Ms. Mentor's Impeccable Advice for Women in Academia](#)

Slide 4: A Day in the Life of an Assistant Prof (2/17/06)

- 8:30-10:15
- Meeting at MDACC on ovary study. Our protocol was approved (Yay!). Did we mention it has to be absolutely pitch dark?

- Try to get back to Rice on time for nanobio training review. Hope it is not raining (irritates my Segway...)
- Nanobio student No. 1 review (I am co-supervisor on joint project)
- 10:30-10:45
- Nanobio student No. 2 review (I am supervisor on joint project)
- 10:45-11:00
- Meeting with postdoc No. 1 on paper revisions due last week.
- 11:00-11:30
- Meeting with student project team No. 1 for BIOE 572
- 11:30-12:00
- Meeting with grad student No. 1 on fl project.
- 12:00-12:30
- Meeting with grad student No. 2 on job search.
- 12:30-1:00
- Meeting with grad student No. 3 on protocol for R21 (Did I mention we have a R21 due today? By 5:00.)
- 1:00-1:30
- Forage office for food.
- 1:30-2:00
- Meeting with student having HW trouble in BIOE 572
- 2:00-2:30
- Meeting with student project team No. 2 for BIOE 572
- 2:30-3:00
- Meeting with grad student No. 4 on paper submission
- 3:00-4:00
- Weekly teleconference on RO1 No. 1. Curse each other (as always) for choosing mouse model for colon cancer. Learn more than you ever care to know about strategies for colonoscopy in mice.
- 3:45-4:00
- Leave teleconference early to hook up computer for this seminar.
- 4:00-5:00
- Give seminar.
- 5:00-6:00
- Teleconference to discuss competing renewal of RO1 No. 2.

TIME is the new MONEY. Negotiating start up is not about maximizing dollars but maximizing your opportunity for success.

Slide 5: Example: A Bare Bones Offer Letter

Letter 1

C. Sidney Burrus
DEAN OF THE GEORGE R. BROWN SCHOOL OF ENGINEERING
MANLYD AND OSBORN PROFESSOR OF ENGINEERING

May 29, 2001

Rebekah Drezek
3207 Grooms St., #1
Austin, TX 78705

Dear Ms. Drezek:

It gives me great pleasure to inform you that we are prepared to act upon a recommendation to appoint you to a position of Assistant Professor in the Department of Bioengineering for a four year term effective July 1, 2002 at a salary of \$[REDACTED] for the nine-month academic year. Faculty members may earn up to three-ninths of their academic salary during the summer from sponsored research, providing they have appropriate grant support. We also offer you the following:

1. A start-up fund of \$[REDACTED] for computational equipment and maintenance for your research, as discussed with Professor McIntire.
2. Up to [REDACTED] months summer salary to be used over the first three years (2002-2005) at Rice University, in the event that full summer salary support for the first three years cannot be obtained from external research funding sources.
3. Support for two graduate students per year, for [REDACTED] years, if needed.
4. We also agree to pay reasonable and justified moving expenses from Austin, TX, to Houston, TX, according to the following schedule: 100% of the first \$1,500; 80% of the next \$1,000; 65% of the next \$1,000; and 50% of the next \$1,000, not to exceed \$3,450.

This offer is contingent upon your receiving your Ph.D. by your arrival at the University July 1, 2002.

Bare Bones Offer Letter

WHAT IS HERE

- salary

- start-up fund
- initial summer salary
- graduate student/yrs
- moving expenses

WHAT IS MISSING

- raise to reflect late start date*
- teaching relief
- how long do you have to spend money?
- when can you start spending?
- where is space?
- how much of it?
- renovations?

*if not incorporated into offered salary – will be difficult to figure out if only 1 year delay

Slide 6: Example: A More Detailed Offer Letter

Letter 2

Example: A More Detailed Offer Letter



Engineering Center in Building 16. Immediately adjacent to your laboratory space is a cell culture facility and computational laboratory. We are also very happy to inform you that we are able to offer you an excellent start up package to help you establish yourself and your research program at MIT. This package which is financed by a combination of the Provost, Dean, EECS, HST, and the Laboratory—all of which very much want you to come to MIT) consists of:

start up AND how long it lasts

slush funds: how much/how long*

dealing with expensive housing*

Rebekah Drezek
Rice University
Bioengineering Department
P.O. Box 1892
Houston, TX 77251

Dear Rebekah:

**Note difference from Rice letter:
tenure clocks are not all the same!**

It is our great pleasure to offer you a dual position as Assistant Professor in MIT's Division of Health Sciences and Technology (HST) and the Department of Electrical Engineering and Computer Science (EECS), starting on or before September 1, 2004, and running for three years.

Initial salary AND raise for future start date

The position carries with it an initial academic year (nine month) salary of \$[redacted] to be paid in twelve monthly installments. If you arrive at MIT after the '04 academic year (after May, 2004), your salary will be incremented by the average per cent increase available for faculty in that year. During the summer months you may accept employment elsewhere or you may work up to three months at MIT in teaching or research, provided appropriate funds are available. Compensation for summer employment at MIT is computed at the monthly rate of one-ninth of the salary quoted above. Three months of summer salary would provide an additional \$[redacted] resulting in a total possible annual compensation from MIT of \$[redacted]. Additionally, you may also devote up to an average of one day a week to consulting or other professional activities.

explicit consulting statement

In addition to your formal appointments in EECS and HST, you will probably want to join an interdepartmental research laboratory. Both the Research Laboratory of Electronics (RLE) and the New Laboratory for Computer Science and Artificial Intelligence have expressed an interesting in having you as a member. Our guess is that you will end up collaborating with colleagues in both labs. Your research laboratory space will be located in the HST Biomedical

specifying location of space

- [redacted] of discretionary funds that you may use for professional activities at MIT until you achieve tenure or leave MIT.
- [redacted] of additional discretionary funds each year from your second year until you achieve tenure.
- [redacted] housing supplement to help you get settled in the Boston area, and
- reasonable moving expenses.

MIT offers an excellent benefits program, the details of which are explained on our web site <http://web.mit.edu/benefits/www/>. We will be happy to answer any questions you might have about these benefits.

Please let us know in writing [redacted] whether you accept this offer. We are very excited by the prospect of having you join the MIT/HST/EECS faculty and look forward to hearing from you soon.

Sincerely,

Martha Gray, PhD
Director, HST

John Guttag, PhD
Head, EECS

Joseph Benveniste, MD, PhD
Director, HST

cc: Rob Brown
Alice Gast
Tom Magnanti
Maria Judge
Elizabeth Cooper

***whether these components are
included depends on the school
& location; discretionary \$\$ may
be built in in various ways**

More Detailed Offer Letter

Slide 7: Faculty Member Perspective

- You are in your most powerful position during the negotiation process (almost impossible to add to once you arrive).
- The Chair is your advocate.
- Teaching reduction buys you time – this is critical!
- Flexibility helps a lot as your needs evolve. Can you change people into equipment? Graduate students into postdocs?
- Talk to as many junior and senior faculty as possible to get advice on what is a reasonable package in your subfield before you start.
- If there is someone at the institution you trust to ask about what a typical package in your field is like that is even better.

- Cannot compare offers w/o understanding a school's overhead and tuition policies. Need to find out how much a graduate student costs and if it changes throughout PhD.
- Also need to understand school's overhead return policies and academic year buy-out policies to compare offers.
- And if it's not in writing, it doesn't exist...

Slide 8: The Chair/Dean Perspective

DO

- Realize this is when your chair/dean are forming their impression of you as a future colleague
- Have and communicate a very clear idea of what you need (2-3 pages)
- Differentiate between what you absolutely can't live without and what would be very helpful
- Know what equipment could be shared with others
- Be prepared on the initial visit for your meeting with the Dean
- Be prepared during the dept interview to say which courses you can teach in the dept. you are interviewing in
- Know your space needs (special power, cooling water, etc.)

DON'T

- Repeatedly change your needs (This was the only comment that every single chair/dean independently mentioned)
- Try to raise your offer at one school to make another match – it becomes obvious and reflects very poorly on you
- Wait until everything else is finalized to bring up a two body issue (when to bring this up is a possible Q and A topic)

Slide 9: Potential Q and A Topics

- Points from Other Panelists
- When is the right time to bring up “two-body” issues?
- What is the right approach to handling multiple negotiation processes?

How to Obtain Funding

[Workshop Authors: Semahat Demir, Lydia Kavraki, Rob Raphael and Joan Strassmann](#)

Introduction

Lydia Kavraki, Ph.D.

Noah Harding Professor of Computer Science

Rice University

Slide 1: Funding is Important

- You need to be prepared to address the issue in the long run
- You need more than a great idea
- You need to understand the logistics

Slide 2: Funding - Logistics

- Identify a funding agency and learn everything you can about this agency (the web and your colleagues are good sources)
- Understand what is the mechanism for submitting a proposal from your institution (“Office of Sponsored Research”)
- Develop a time frame for writing and proofreading the proposal

Slide 3: Funding Opportunities

[Slide modified from Kinney, Neptune and Wilson](#)

- [NIH](#)
 - [CRISP – Database of funded projects](#)
 - [NIH Review Criteria](#)
 - [Article: How to get NIH funding](#)

- [NSF](#)
 - [CAREER program](#)
 - [Engineering Division](#)
 - [Article: NSF grant writing](#)
- Private Foundations
 - Coulter, March of Dimes, and many others
- Office of Naval Research
- [NIDRR - The National Institute on Disability and Rehabilitation Research](#)
- Miscellaneous Funding Links
 - [GrantsNet](#)
 - [Science magazine - search for articles](#)
 - Grant writing
 - [University of Michigan's Proposal Writer's Guide Author, Don Thackrey](#)
 - Google search for articles
 - Book – Research Proposals: A Guide to Success (Ogden and Goldberg)
- Industry
 - SBIR mechanism (NSF, NIH)
 - Direct funding from companies

Slide 4: Your University

- A proposal needs a budget and appropriate signatures
- Lead time is typically required
- Your colleagues can help you understand all that

Slide 5: Time Frame

- Allow time for many drafts
- Allow time for feedback
- Allow extra time

Slide 6: Funding is Important

- You need to be prepared to address the issue in the long run
 - How will you prepare yourself for the next grant?
- You need more than a great idea
 - You need to be able to communicate and support your idea
- You need to understand the logistics

Slide 7: Do not Let Funding Consume You

- Your “growth” as a researcher is essential
- Publish, collaborate, discuss your ideas, read, be brave and be prepared to fail

Slide 8: NSF, Funding Opportunities and Successful Proposal Writing

Semahat Demir, Ph.D.

Program Director

Biomedical Engineering Program

National Science Foundation

Slide 9: Outline

- Overview of NSF

- Different NSF Funding Opportunities
- NSF's Priority Areas (NSF-Wide Investment Areas)
- NSF Merit Review Criteria
- Tips for Successful Proposal Writing

Slide 10: NSF Vision

- NSF: Where Discovery Begins
 - Enabling the Nation's future through discovery, learning and innovation.

Slide 11: NSF Overview

- Founded in 1950
- An independent federal agency
- Responsible for advancing science and engineering
- Makes merit-based grants and cooperative agreements
 - Individual researchers and groups
 - Colleges, universities
 - Other institutions: public, private, state, local and federal
- Does not operate laboratories
- Peer-review and evaluation of 42,000 proposals (FY05) submitted by science and engineering research and education communities
 - 9,800 new awards (success rates are different for different programs)
 - 246,000 proposal reviews done

Slide 12: NSF Support

Physical Sciences:	40%
Engineering:	46%
Social Sciences:	52%
Environmental Sciences:	54%
Biology (excluding NIH):	66%
Mathematical Sciences:	77%
Computer Sciences:	86%

NSF Support as a Percent of Total US Federal Support for Academic Basic Research in Selected Fields

Slide 13: Funding Opportunities at NSF

- Individual Programs
 - Research, education, center programs
- Priority Areas (Investment Areas for FY)
 - Cross-Programs and Cross-Directorates
- Cross Disciplinary Areas
 - Cross-Programs and Cross-Directorates
- Interagency Programs
 - NSF, and other government agencies

Slide 14: Award (Grant) Types

- Individual Investigator Initiated Awards
- CAREER Awards
- Center Awards
- SBIR/STTR awards
- SGER awards
- Supplements
- Workshops, conferences

Slide 15: NSF Disciplines and Structure

1. Biological Sciences (BIO)
2. Computer and Information Sciences and Engineering (CISE)
3. Education and Human Resources (EHR)
4. Engineering (ENG)
 - Biomedical Engineering Program
5. Geosciences (GEO)
6. Mathematical and Physical Sciences (MPS)
7. Social, Behavioral And Economic Sciences (SBE)
8. Polar Programs
9. Office of Cyberinfrastructure
10. Office of International Science and Engineering
11. Office of Integrative Affairs

Slide 16: NSF-Wide Investment Areas (FY 06)

- Nanoscale Science and Engineering
- Biocomplexity in Environment
- Human and Social Dynamics
- Mathematical Sciences
- Cyberinfrastructure

Slide 17: NSF-Wide Investment Areas (Request for FY 07)

- Biocomplexity in Environment

- Climate Change Science Program
- Cyberinfrastructure
- Human and Social Dynamics
- International Polar Year
- Mathematical Sciences
- National Nanotechnology Initiative
- Networking Information Technology R and D

Slide 18: NSF Merit Review Criteria

- Criteria include:
 - What is the intellectual merit and quality of the proposed activity?
 - What are the broader impacts of the proposed activity?

Slide 19: What is the intellectual merit of the proposed activity?

- Potential Considerations:
 - How important is the proposed activity to advancing knowledge and understanding within its own field or across different fields?
 - How well qualified is the proposer (individual or team) to conduct the project? (If appropriate, the reviewer will comment on the quality of prior work.)
 - To what extent does the proposed activity suggest and explore creative and original concepts?
 - How well conceived and organized is the proposed activity?
 - Is there sufficient access to resources?

Slide 20: What are the broader impacts of the proposed activity?

- Potential Considerations:

- How well does the activity advance discovery and understanding while promoting teaching, training and learning?
- How well does the activity broaden the participation of underrepresented groups (e.g., gender, ethnicity, disability, geographic, etc.)?
- To what extent will it enhance the infrastructure for research and education, such as facilities, instrumentation, networks and partnerships?
- Will the results be disseminated broadly to enhance scientific and technological understanding?
- What may be the benefits of the proposed activity to society?

Slide 21: Tips for Successful Proposal Writing

- Determine if your project is relevant to the program
 - Get in touch with the Program Director
 - Program Director:
 - Review Panels
 - Award/decline recommendation
 - Post management of the awards (progress report)
- Follow the instructions posted by the agency
 - Format, sections, project plan
 - Agency's Review Criteria (NSF Merit Review Criteria)
 - Priority Areas for the agency
- Respond to a solicitation
 - Deadlines (pre-proposal, letter of intent, full proposal)
 - Additional review criteria and requirements
- Read “successful” proposals of your colleagues
- Have your proposal reviewed by collaborators or colleagues before submitting
- Do not submit on the day of the deadline

- Volunteer to serve on a review panel

Slide 22: How to Obtain Funding: An Assistant Professor's Guide

Robert M. Raphael, Ph.D.

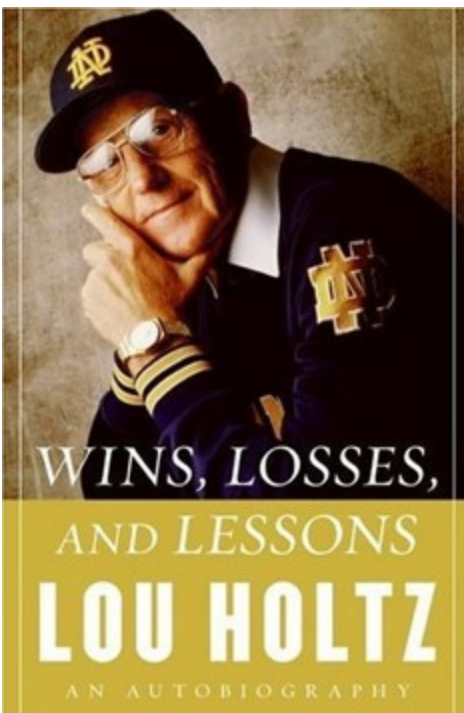
TN Law Assistant Professor

Dept. of Bioengineering

Rice University

Slide 23: Spirit of the Fighting Irish

Lou Holtz



“To everyone who has
ever faced adversity,
whether in business,
professional or personal

life. I admire the person
who says: Every day
someone does
something great. Today
that person will be me.”
-- Lou Holtz

Slide 24: Writing Great Grants: A Three Step Recipe

1. Choose a significant problem
 - Bonus points if not much work has been done on the problem
 - More bonus points if you have done the important work
2. Leave no question that you can accomplish your aims
 - Established track record of publications
 - Clear and convincing preliminary data
3. Write a clear, easy to read proposal
 - “Calm down, understand the situation and communicate clearly”
– We Were Soldiers

Slide 25: Big Hurdles and Pitfalls

- Navigating the **Scylla** of building on your accomplishments and the **Charybdis** of creating new research problems and attacking new research areas, given your situation:
 - Laboratory techniques not yet working
 - Students not yet trained/busy with classes
 - Teaching and other responsibilities
- Proposing to do too much

- Not making clear the points and connections that are obvious to you

Slide 26: Final Do's and Dont's

- Do not necessarily assume the person who reviews your grant will be an expert in your area or know why your research is novel
- The response to a revised NIH grant is very important
 - Never appear to be angry or emotional. Just stick to the science. If a reviewer got something wrong (which often happens), just lay out the facts.
 - This is hard because you have put so much effort into the grant it's easy to take comments personally.
 - Criticisms are of the science, not of you!
- Get grants done in advance and have colleagues read them !
 - Resist the thrill of pulling it off on “third and long”

Slide 27: And Remember:



Slide 28: Acknowledgements

“My mariners, Souls that have toil'd, and wrought, and thought with me”



Raphael Lab: Emily, Yong,
Ryan, Jeff, Imran, Jenni,
Louise (and Robert Raphael,
center)

- Thanks for Believing in Us!
 - NSF CAREER
 - Whitaker Foundation
 - Texas Advanced Technology Program
 - National Organization for Hearing Research
 - NIH NRSA (Greeson, Organ)
 - NSF-IGERT
 - Keck Center for Computational and Structural Biology
 - DOE Computational Science Graduate Fellowship

Slide 29: So you want someone else to pay for your research?

Joan E. Strassmann, Ph.D.

Department Chair

Ecology and Evolutionary Biology

Rice University

- So you want someone else to pay for your research?
 1. Ask important, big questions.
 2. Have several projects at once.
 3. Write clear, well-researched proposals.
 4. Collaborate.
 5. Identify all possible funding sources and learn their cultures.
 6. Don't let funding consume you. Keep publishing!

Slide 30: Number 1 - Ask important, big questions.

- Do not redo your Ph.D. or postdoc work.
- Find a substantially new project if your proposal is rejected twice.
- Read deeply and broadly (at least 5 articles a day).
- Be creative.
- Do not be afraid to do something really different.

- Talk to lots of people about research.

Slide 31: Number 2 - Do several projects at once.

- Keeps you excited.
- When one project faces problems, another could be blooming.
- Increases funding opportunities.
- Synergy in thinking about different things can suggest novel pathways.
- Increases your visibility.

Slide 32: Number 3 - Write clear, well-researched proposals.

- The proposal must be impeccable, no typos, clear headers, clear flow from hypotheses to methods.
- Follow the format of the agency exactly.
- Include preliminary data and figures.
- Get sample funded proposals by asking people for them, preferably those not too close to your research.
- Have several people read your proposal.
- Leave enough time, at least 3 months.

Slide 33: Number 4 - Collaborate.

- New ideas often come from collaboration.
- Techniques and approaches can be shared.
- This is the ONLY way to succeed without turning into a workaholic.
- Teamwork is fun!
- Find collaborators from a broader pool than is initially comfortable, and bridge the gaps with frequent meetings.
- Same-stage collaborators are often best.

Slide 34: Number 5 - Identify all possible funding sources and learn their cultures.

- NSF and NIH are not the only sources of funding.
- Learn about those grants requiring nominations, and get them.

- Take advantage of your sponsored research office in learning about private funding.

Slide 35: Number 6 - Keep publishing.

- The search for funding can be discouraging.
- Keep trying, but don't forget to keep publishing anyway.
- Write up your research quickly.
- Write a minireview, review, perspective etc. at least every 2 years.

Slide 36: Conclusion

Have fun! It's a great life!

Teaching Your First Course: Balancing Teaching and Research

[Workshop Authors: Richard Baraniuk, Mike Gustin, Jane Grande-Allen, and Yousif Shamoo.](#)

Slide 1: Discussion Topics

- How to be a good teacher
- How to balance teaching and getting a research program off the ground

Slide 2: Why do we teach?

- So that people **learn**

Slide 3: Who do we teach?

- students
- colleagues
- your chair, your dean
- the public
- program managers
- patent office
- ...

Slide 4: Teaching Tips

- Developing a good course takes time
 - learn good time management
- What students learn is less than what you teach
 - don't just try to "cover" the material
- Learning styles [[Richard Felder, NCSU](#)]

- don't "teach yourself"
- Active learning [[Richard Felder, NCSU](#)]
 - "I hear, I forget; I see, I remember; I do, I understand"
 - 2 minute paper

Slide 5: Jane Grande Allen, Dept. of Bioengineering, Assistant Professor

- Started teaching Spring 2004

Slide 6: Your First Year Teaching

- Plan 6-8 hours of prep time per lecture
- Don't expect perfection
- Do get feedback throughout the semester
- Don't expect eager listening faces
- Do make the time to get to know your students or at least learn names
- Assignment tips
 - Textbooks have typos
 - Work the exams yourself
 - Extra credit: not all that

Slide 7: After - Recap and Revise

- Fix the lectures that needed the most work first
- Every few lectures, work in up to date data to keep things current
- Get a mentor and meet monthly. Go over how EVERYTHING has been for you
- Do attend teaching workshops

Slide 8: Evaluations

Don't take the evaluations too harshly

- “This professor actually discouraged independent thought...”
- “Dr. Grande-Allen is the most fair and considerate teacher I’ve had at Rice...”
- “Not enough engineering – too much biology”
- “The name of the course should surely be changed to Mechanical Properties of ECM because little or no chemistry or biology was discussed”

Slide 9: Time Management / Balance

- Set office hours and keep to them
- Give the same course lecture you gave last year
- Don’t say yes to every undergrad that wants to work with you
- Focus your time on learning what you need for the research you will be strongest at
- Do early
 - Write IRB and IACUC
 - Attend regional training seminars by NIH and NSF
 - Sign up for grants mailing lists

Slide 10: Maintain Perspective

- Get a mentor and meet monthly!
 - Colleagues, other young faculty
- Get to know some people and faculty outside the department
- Read [At the Helm](#)
- Check out a few blogs of other women in this position

Slide 11: Points for Discussion

- How to deal with absent or failing students
- The students are not like you were/are
- Should you recycle quizzes/exams?

- How accommodating should you be to student requests?
- Where did the day go? Protecting your time
- What is important and not important?

Building Your Lab

[Workshop Authors: James McNew \(BCB\), Qilin Li \(CEVE\), Corey Wilson \(CalTech\), Shelly Harvey \(Math\)](#)

Slide 1: Building Your Lab

- Space
- Equipment
- Personnel

Slide 2: Physical Space

- Moving into existing space
- Lab remodels
- New building space

Slide 3: Existing space

- Is the space adequate for your needs?
 - Proximity to colleagues
 - Access to Dept/University equipment
 - Proper Air/Vacuum/Water for equipment
 - Hoods (chemical and tissue culture)
 - Air handling and vibration
- Does it have desk space for students and postdocs?
- Is office space separate?

Slide 4: Build or Remodel

- Is the space adequate for your needs?
- Start early
- Do the research
- Set a bottom line

- Be actively involved in the process

Slide 5: Start Early

- It usually takes 6-12 months to build or remodel a lab
- Specify a desired date of completion during the negotiation
- Contact equipment vendors (for specs)
- Consider options for teaching or grant writing efforts until the space is complete
- Identify temporary space for lab work

Slide 6: Do the Research

- Visit state-of-the-art labs
- Site visit
 - Meet your project manager
 - Location: avoid location-specific problems that affect your research, e.g., vibration, freight elevator availability, etc.
 - Infrastructure: air conditioning, ventilation, DI water system, gas lines, etc.
 - Ask people who know the lab
- Collect information on equipment
 - power requirement
 - heat generation
 - waste generation
 - Other needs for equipment: gases, water, etc.
- Leave space for future expansion
 - Predict future equipment needs

Slide 7: Set a Bottom Line

- Make a list of “must” and “must not” and be firm

- Do not expect future improvement
- Take into consideration future research needs
- Consider options for teaching or grant writing efforts until the space is complete
- Identify temporary space for lab work

Slide 8: Be Actively Involved

- Why
 - You know your needs the best.
 - Good communication avoids mistakes.
- What
 - Project schedule and progress
 - Specific information on equipment
 - Special needs
- How
 - Follow the progress
 - Communicate with the contractors

Slide 9: Equipment and Supplies

- Equipment purchase
 - Be aware of available discount, e.g., “New lab set up” programs at large vendors like Fisher and VWR
 - Negotiate with many vendors
 - Usually 1-3 months of lead time for major equipment
- Supplies
 - Package as much as you can with each major vendor
 - Negotiate with many vendors

- Consider larger quantities of items you know you will need
 - This is the biggest discount you will ever get on things you buy
 - Consider storage of large quantities

Slide 10: Populating your lab

- Technical Staff
- Graduate students vs. postdocs
 - How available are students?
 - How difficult is it to recruit post-docs?
 - Are technicians the best use of limited resources?
 - What Dept/University funding mechanisms are available for students or post-docs?

Slide 11: Lab Personnel

- Personnel Management
- Establishing a “lab culture” is very important
- Be proactive in addressing potential personnel conflicts
 - No one wants to work in a caustic or poisonous lab environment
- Lead by example

Understanding the Promotion and Tenure Process

[Workshop Authors: Morgan, J., West, J. and Matthews K.](#)

Slide 1: What can I do now?

- Think about your steps all along the way
 - Consistently evaluate your own progress
 - Goals
 - Mechanisms to get there
 - Ways to learn from others and engage them
 - Keep data on all your activities
 - Ask for feedback
 - Grant writing
 - Papers
 - Teaching
- This process is the accumulation of years of effort
 - THINK AHEAD!!!

Slide 2: Understand the General Process

- Learn about the promotion and tenure process at your institution
 - Ask about the process when you interview
- Request a copy of the policy
 - Be sure when you are interviewing that the policy is consistent with your personal goals
- Understand the balance of teaching, research, and service that the institution AND the department will expect

Slide 3: General Process

Dossier

- Summary of your independent career at institution
- Information on all aspects of your career
 - Research summary (publications, grants, citations, awards)
 - Teaching summary (courses, evaluations, awards)
 - Service summary (activities, awards)
- Inside reviews/letters
- Outside letters****
 - Writers identified by department
 - Also usually writers identified by individual

Understand the timing of preparing the dossier, what you should submit and when

- If you should submit names for Outside Letters

Understand the process completely

Don't wait until the last minute to prepare your materials

- Think about your research/teaching summary
- Ensure that your papers are submitted in a timely way

Ask QUESTIONS if you do not understand

Outside Letters

- Highly influential in decision process
- May have opportunity to suggest names
 - Develop relationships - create a network
 - MARKET yourself!

- Post-decision: Ask about possibility for feedback from the letters (can be useful)
- Anticipate whom you would want to write letters and get to know those individuals

Slide 4: Publications

- Demonstrate your contributions
- Provide evidence of your independence
 - Issues of collaborators
 - How many?
 - How much of your time?
- Used to assess your productivity
 - Numbers vary widely among disciplines
 - Type of publications expected also vary widely
- Used to assess the quality of work produced
 - Citations
 - H-factor
 - Impact on the field

Slide 5: Factors Considered

- Research
- Teaching
- Service
 - These factors combine to reach a decision — but the specific combination varies widely across institutions

Slide 6: Research

- Publications/Citations/h-factor
 - Way you are known for your work
- Grants
 - Demonstrate ability to secure funding for research
- Presentations
 - Invitations reflect status in the field
- Visibility/Engagement/Focus
 - Present at multiple conferences
 - Present at multiple conferences
 - Engage the leaders at those conferences
 - Invite leaders to your institution via department events
 - Reflect on level of focus in work and, if broad, engage multiple communities
- Keep your CV up to date
 - Include students mentored at all levels (primary and secondary mentoring)
 - Undergraduates
 - Graduate Students
 - Post-doctoral Associates
 - Include advising responsibilities at all levels
 - Refereed publications
 - Some institutions request an evaluation of % effort on each
 - Citations — check your “h-factor”
 - Abstracts / Conference Proceedings
 - Presentations

- Seminars/Workshops/Panels/etc.
- Posters
- Invited talks at meetings

Slide 7: Teaching

- Effectiveness
 - Often evaluated by students
 - Ask assigned or selected mentor to provide review
- Innovation
 - Think about ways to do it better/more effectively
 - Engage students
- Range/breadth
 - Assignments may be focused or broad
 - Be prepared to teach beyond your comfort zone
- Enthusiasm
 - Convey why you love what you do
 - Occasionally volunteer for something extra
- Develop of portfolio of your teaching
 - Syllabi
 - Handouts
 - Problem sets
 - Other written materials
 - Computer-based materials
 - Examinations
 - Copies of graded papers where there is a significant writing component
 - Evaluation by a colleague
 - Student evaluations

Slide 8: Service

- Department
 - Help your department accomplish the faculty's goals
- University
 - Engage in the broad community, but wisely — most P/T committees are broad
- National Organizations
 - Choose wisely for visibility with minimum time
- K12/Outreach Opportunities
 - Choose wisely, but make a difference

Slide 9: What Happens After Dossier Is Prepared?

- Department Review
 - Tenured faculty generally involved in decision to recommend or deny tenure
 - Department chair writes letter
 - Some schools have subcommittee
- School Review
 - Often school-level committee reviews and makes recommendation to dean
 - Dean makes recommendation
- Promotion/Tenure Committee (Provost)
 - Makes recommendation to President

- President makes final decision
- **Multiple levels of review — no one person makes the decision!**
Many voices are part of the process.

Slide 10: P/T versus Performance Reviews

- Ask your institution about frequency and nature of performance reviews
 - Can be very helpful in guiding activities
 - Opportunity for mid-term feedback
 - Provide an internal view of accomplishments
 - Some may have external letters
 - Dossier can be similar to promotion dossier

Slide 11: Are there answers to my questions?

- How many publications do I need?
- How much grant funding?
- How many graduate students? Post-docs?
- How good must my teaching be? Does it matter?
- How do I know if I'm doing enough?

There are no “right” answers to these questions, because the process is a composite of all of these and varies from place to place:

FIND OUT WHAT YOU CAN ABOUT YOUR INSTITUTION - ASK QUESTIONS!!!

Slide 12: Questions?

Ask many, ask often....

Balancing Your Life

[Workshop Authors: Janet Braam, Carrie Masiello, Tony Mikos, John Olson, Keith Cooper, and Pernilla Wittung-Stafshede](#)

Time Management Guidelines

Home:

- Accept less (cleanliness, simple meals, etc.)
- Hire a housekeeper
- Shopping, chores – plan to do as infrequently as possible
- Expect partners to equally share responsibilities
- Delegate tasks to other family members/housekeeper
- Use available resources: childcare, backup childcare, summer camp

Work:

- 5 minute rule: if you can do it in 5 minutes, do it now and be done with it.
- Make realistic to-do lists – rank by importance
- Don't procrastinate. Limited time requires great focus of attention.
- Use available secretarial resources: don't make photocopies, as possible, delegate grant paperwork, travel arrangements, other scheduling
- as available, use TA's
- delegate answering student questions. So you don't know the answer either? Say, 'Good question. Find that out and tell me the answer.'

- Make careful decisions regarding your time. Do this by never committing immediately. Always ask for time to consider.

- Prioritize as follows:

1. Will this get me tenure?
2. Will this help my students?
3. Will this advance me professionally outside of my institution?

- If practical, say yes to:

Panel service (NSF, NIH, NASA, DOE, etc)

Do this at least once as early as possible in your tenure clock.

Not more than 12 reviews total per year. This includes both proposal reviews and manuscript reviews.

Develop a manuscript review template to speed manuscript reviewing.

- Professional Travel:

Many people find this more challenging after having children. If at all possible, do much of this before children. As children become older, travel will become easier.

- Be Selfish With:

1. Your physical health
2. Your mental health
3. Your family time
4. Your time with your partner